

Injury Data 101: Where do we get injury data?

This factsheet is the second in a series on injury and injury data in British Columbia (BC). Visit injuryresearch.bc.ca/data for more information on data in BC.

The Injury Iceberg

The overall burden of injury can be depicted using an iceberg. It can also be depicted using a pyramid.¹

Looking at the injury iceberg:

- Injuries for which data are readily available are above the water line.
- Injuries that are difficult to “see” using currently available data sources are below the water line.

Where do injury data come from, and how are they presented?

Data can help us understand the injury profile of a population: how, why, and where a population is injured. These data give us a picture of injury at the local, regional, and provincial levels.

Primary sources of injury data are used to describe injuries by outcome, such as number of deaths, hospitalizations, or emergency department visits.

Other sources of injury data are used to describe injuries by specific causes, such as injury related to workers’ compensation claims, or transport-related insurance data.

- Deaths
- Hospitalizations
- Emergency departments

- Walk-in clinics
- Doctor’s offices
- Treated at home
- Not treated



Primary sources of injury data for British Columbia:

Injury Deaths	
BC Coroners Service	A record of unnatural, sudden/unexpected, unexplained, or unattended deaths in the province. Not all deaths are reported to the BC Coroners Service. https://www2.gov.bc.ca/gov/content/life-events/death/coroners-service/statistical-reports
BC Vital Statistics	Reports on deaths in BC by year, with information from the BC Coroners Service. https://www2.gov.bc.ca/gov/content/life-events/statistics-reports/deaths https://www2.gov.bc.ca/assets/gov/health/forms/5505datadictionary.docx
Injury Hospitalizations	
Discharge Abstract Database (DAD), Ministry of Health	Information on hospital discharges, including deaths, sign-outs, transfers, demographic, and other administrative and clinical information. https://www2.gov.bc.ca/assets/gov/health/forms/5429datadictionary.pdf
BC Trauma Registry, Trauma Services BC	Information on patients requiring complex trauma care. These are injuries presenting to hospital with an Injury Severity Score ≥ 9 . http://www.phsa.ca/our-services/programs-services/trauma-services-bc
Emergency Care	
BC Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP)	Injury and poisoning surveillance system in 20 Canadian hospitals, including BC Children's Hospital and Kelowna General Hospital. https://www.canada.ca/en/public-health/services/injury-prevention/canadian-hospitals-injury-reporting-prevention-program.html
Vancouver Coastal and Fraser Health Emergency Department Surveillance Unit	Both Vancouver Coastal Health and Fraser Health Authorities track injuries seen in their emergency departments.
National Ambulatory Care and Reporting System (NACRS)	NACRS data are available for 30 hospitals in BC. NACRS in BC does not capture the external cause of injury, which is a limitation from a prevention standpoint. https://www2.gov.bc.ca/assets/gov/health/forms/5454datadictionary.pdf



The Injury Severity Score (ISS)² is a scale used to describe the severity of an injury. Its calculation is based on the body region injured (head or neck, face, chest, abdominal or pelvic contents, extremities or pelvic girdle, and external), and on values assigned to the Abbreviated Injury Scale – from 1 (minor injury) to 6 (maximum injury). The ISS ranges from 1 to 75.

Other sources of injury data for British Columbia:

Insurance Corporation of British Columbia (ICBC) Traffic Accident System (TAS)	Data on motor vehicle crashes and injuries. https://www.icbc.com/about-icbc/newsroom/Pages/Statistics.aspx https://public.tableau.com/app/profile/icbc#%21/
WorkSafeBC	Data on work-related death and injury claims. https://www.worksafebc.com/en/about-us/shared-data/interactive-tools/industry-health-safety-data

BC Drug and Poison Information Centre (BC DPIC)	Call centre data on potential and actual poisoning events. http://www.dpic.org/
BC Emergency Health Services	Ambulance services data. http://www.bcehs.ca/our-research/about-research-at-bcehs
PopDataBC	Linked data available for research purposes. An application is required to access these data, at a cost. PopDataBC datasets include, but are not limited to: <ul style="list-style-type: none"> • BC Vital Events and Statistics: Deaths • Discharge Abstract Database (Hospital Separations) • National Ambulatory Care Reporting System (NACRS) • Medical Services Plan (MSP) Payment Information File • PharmaNet • ICBC - Traffic Accident System (TAS) • BC Population Projections 2018 to 2041 https://www.popdata.bc.ca/data/listings

National sources of injury data:

Statistics Canada	National and provincial information on deaths, population, employment and labour statistics, census data, and other information. Data are available through tables that can be manipulated to obtain customized data. https://www.statcan.gc.ca/en/start
CIHI	An independent, not-for-profit organization that creates reports on the health of Canadians. https://www.cihi.ca/en
Transport Canada	Information on Canadian motor vehicle traffic collision statistics, child restraint use, road safety in Canada; National Collision Database Online. https://tc.canada.ca/en/road-transportation/statistics-data https://wwwapps2.tc.gc.ca/Saf-Sec-Sur/7/NCDB-BNDC/p.aspx?!=en
Lifesaving Society / Drowning Prevention Research Centre of Canada	Fatal and non-fatal drownings. https://www.lifesaving.ca/national-drowning-report.php https://www.drowningresearch.ca/
Canadian Agricultural Injury Reporting (CAIR)	Agricultural-related injuries resulting in hospitalization or death. https://www.casa-acsa.ca/en/cair/



First Nations Information Governance Centre (FNIGC)

The FNIGC is a non-profit organization, operating with a special mandate from the Assembly of First Nations Chiefs-in-Assembly. It conducts regional health surveys investigating the well-being of Indigenous peoples, including wellness, poverty, childcare, smoking in youth, physical activity, and gender-based violence. The First Nations Data Centre houses data on injury type, cause as classified by age and gender, activity when injured, location when injured, and other health data. FNIGC also provides education on the First Nations principles of OCAP®: ownership, control, access, possession.

<https://fnigc.ca/first-nations-data-centre/>



Injury Data Online Tool (iDOT)

iDOT is a tool developed by the BC Injury Research and Prevention Unit to provide the public with access to aggregated injury data and data visualizations for British Columbia.

Data tools include:

- Injury-related deaths, *BC Vital Statistics, Ministry of Health*
- Injury hospitalizations, *Discharge Abstract Database, Ministry of Health*
- ICBC Traffic Accident System fatality data, *Insurance Corporation of British Columbia*
- Sports-related injury hospitalizations, *BC Vital Statistics, Ministry of Health*
- BC Children's Hospital Emergency Room visits, *Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP)*
- Work-related injury claims, *WorkSafeBC*

<https://www.injuryresearch.bc.ca/idot/>



Missing information: Understanding the external cause of how an injury happened is essential for developing injury prevention strategies, yet this information is often absent in datasets.

- The NACRS dataset currently available in BC does not include external cause of injury. For example, it can provide information on the number of people who sustained a leg fracture, and which part of the leg was fractured, but cannot inform how the fracture occurred or how it might have been prevented.
- The DAD hospitalization dataset does include the external cause of injury; however, this information is often incomplete. A broken hip may be recorded as the result of "unspecified fall," without any further information about how and where it happened. Was it a fall down a set of stairs, off a ladder, or the result of slipping on ice? In addition, the DAD dataset does not include the geographic location of where the injury occurred. This is important for prevention of specific injuries, for example, road-related injuries.
- Most of the administrative datasets provide minimum information and do not provide details on the circumstances of the injury such as how the injury occurred, what was the person doing, etc.

What are some challenges and limitations of injury data?



Delay in availability: Acquiring timely, accurate, and specific injury data is challenging. There is typically a delay of months to a few years before injury data are available for research.

This delay is because injury data are often not collected for surveillance or research purposes. Administrative datasets focus more on how an injury is responded to and treated, rather than the circumstances of how the injury occurred. Incomplete or missing information is an ongoing challenge.

Unlike COVID-19 data, which were collected in real-time for surveillance purposes so that the government could respond to the ongoing pandemic, injury datasets are **administrative datasets**, which are used for recording and monitoring the health care system.

For injury death data, many cases are still under investigation by the Coroner and therefore not available. Exploring recent data trends may be challenging as these data will be underreported.



Nonstandard reporting: To make things more complicated, not all data are presented equally across different sectors and sources. While there are efforts to create uniformity and standards in coding injury data, differences can make it challenging to compare across sources. For example, the CHIRPP dataset has its own unique set of variables and codes. In order to compare these data with deaths or hospitalizations, the CHIRPP data need to be recoded using the current ICD classifications.



Linked datasets: While not widely available, linking datasets allows for a more accurate picture of the burden of injury. It allows researchers to follow the progression of an individual injury through the health care system, reducing double counting of one injury that may have resulted in several health care visits. Data linkage is currently available via PopDataBC.

REFERENCES

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